



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
|-----------------|-------------|----------------------|---------------------|------------------|
|-----------------|-------------|----------------------|---------------------|------------------|

10/537,788

06/06/2005

Koichi Sato

03500.018152

6628

5514 7590 02/22/2008
FITZPATRICK CELLA HARPER & SCINTO
30 ROCKEFELLER PLAZA
NEW YORK, NY 10112

EXAMINER

MARTIN, LAURA E

ART UNIT

PAPER NUMBER

2853

MAIL DATE

DELIVERY MODE

02/22/2008

PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

| | | | |
|------------------------------|--------------------------------------|------------------------------------|--|
| Office Action Summary | Application No. 10/537,788 | Applicant(s) SATO ET AL. | |
| | Examiner LAURA E. MARTIN | Art Unit 2853 | |

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 03 January 2008.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 12-21 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 12-21 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Claim Objections

Claim 18 is objected to because of the following informalities: “the amphiphilic block copolymer”. Appropriate correction is required.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this

Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 12-16 and 18-21 are rejected under 35 U.S.C. 102(b) as being anticipated by Takizawa et al. (US 5990227 A).

Takizawa et al. disclose the following claim limitations:

As per claim 12: method for applying to a recording medium a liquid consisting of a first liquid composition and a second liquid composition, each of the liquid compositions comprising a functional substance (colorant), an amphiphilic block copolymer (styrene-acrylic acid and methylvinylether-monoethyl maleate), and a liquid medium (water) (column 30, line 47 - column 31, line 10), with a pH and a pKa of an organic acid group (acrylic acid and maleic acid) or a salt of the organic acid group of the copolymer of the first liquid composition being different than a pH and a pKa of an organic acid group or a salt of the organic acid group of the copolymer of the second liquid composition,

Art Unit: 2853

wherein an increase in viscosity of the first liquid composition is caused by a decrease in pH of the first liquid composition on contact with the second liquid composition. Wierenga et al. (US 5399296 A) discloses acrylic acid having a pKa of 4.26 and maleic acid having a pKa of 2.0).

As per claim 13: the first liquid composition is greater than the second liquid composition in pKa of the organic acid group or the salt of the organic acid group of the copolymers (column 30, line 47 - column 31, line 10). Wierenga et al. (US 5399296 A) discloses acrylic acid having a pKa of 4.26 and maleic acid having a pKa of 2.0).

As per claim 14: the difference between the pKa of the organic acid groups or the salts of the organic acid groups contained in the copolymers of the first and second compositions is 0.3 or more (column 30, line 47 - column 31, line 10). Wierenga et al. (US 5399296 A) discloses acrylic acid having a pKa of 4.26 and maleic acid having a pKa of 2.0), and a difference between a pH of the first and second liquid compositions is 0.3 or more (table 4, column 33, line 32).

As per claim 15: the difference between the pKa of the organic acid groups or the salts of the organic acid groups contained in the copolymers is 2 or more (acrylic acid has a pKa of 4.26 according to Wierenga et al. (US 5399296 A)).

As per claim 16: the pKa of at least one of the organic acid groups or the salts of the organic acid groups is 2 or less (maleic acid has a pKa of 2.0 according to Wierenga et al. (US 5399296 A)).

Art Unit: 2853

As per claim 18: the amphiphilic block copolymer has an alkenyl ether as a repeating monomer unit (methyl vinyl ether - column 30, line 47 – column 31, line 10).

As per claim 20: the functional substance is a colorant (column 30, line 47- column 31, line 10).

As per claim 21: an apparatus for liquid application, comprising a liquid applying means for applying the liquid (figure 1, element 65) and a driving means for driving the liquid applying means (figure 1, element 68).

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claim 17 is rejected under 35 U.S.C. 103(a) as being unpatentable over Takizawa et al. (US 5990227 A) in view of Nakazawa et al. (EP 1243624 A1).

Takizawa et al. disclose the following the claim limitations:

As per claim 17: the method according to claim 12.

Takizawa et al. do not disclose the following claim limitations:

As per claim 17: the organic acid groups are selected from benzoic acid groups, aliphatic dicarboxylic acid groups, aromatic dicarboxylic acid groups, halogen-substituted benzoic acid groups, and sulfonic acid groups.

Art Unit: 2853

Nakazawa et al. disclose the following claim limitations:

As per claim 17: the organic acid groups are selected from benzoic acid groups, aliphatic dicarboxylic acid groups, aromatic dicarboxylic acid groups, halogen-substituted benzoic acid groups, and sulfonic acid groups [0016]-[0017].

Nakazawa et al. also discloses the amphiphilic block copolymer has an alkenyl ether as a repeating monomer unit [0016]-[0017].

It would have been obvious to one of ordinary skill in the art at the time of the invention to modify the method taught by Takizawa et al. with the disclosure of Nakazawa et al. to provide superior dispersion stability.

Claim 19 is rejected under 35 U.S.C. 103(a) as being unpatentable over Takizawa et al. (US 5990227 A) in view of Mishina et al. (US 6511534 B1).

Takizawa et al. disclose the following the claim limitations:

As per claim 19: the method according to claim 12 and an amphiphilic block copolymer (column 30, line 47—column 31, line 10).

Takizawa et al. do not disclose the following claim limitations:

As per claim 19: the functional substance is enclosed by a polymer.

Mishina et al. disclose the following claim limitations:

As per claim 19: the functional substance is enclosed by a polymer (column 16, lines 35-43).

It would have been obvious to one of ordinary skill in the art at the time of the invention to modify the method taught by Takizawa et al. with the disclosure

Art Unit: 2853

of Mishina et al. in order to provide strong fixing properties on a plurality of print medium surfaces.

Response to Arguments

Applicant's arguments with respect to claims 12-21 have been considered but are moot in view of the new ground(s) of rejection.

Conclusion

Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than **SIX MONTHS** from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to LAURA E. MARTIN whose telephone number

Art Unit: 2853

is (571)272-2160. The examiner can normally be reached on Monday - Friday, 7:00 - 3:30.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Stephen D. Meier can be reached on (571) 272-2149. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Laura E. Martin

/Manish S. Shah/
Primary Examiner, Art Unit 2853